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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

March 28, 1995

By Hand

Mr. William F. Caton  
Acting Secretary  
Federal Communications Commission  
1919 M Street, NW  
Washington, DC 20554

DOCKET FILE COPY ORIGINAL

Re: Ex Parte Presentation  
CC Docket No. 92-297, ET Docket No. 94-124

Dear Mr. Caton:

This is to advise the Commission that on March 27, 1995, Shant Hovnanian and Bernard Bossard of CellularVision, and Michael R. Gardner of The Law Offices of Michael R. Gardner, P.C., met with Commissioner Susan Ness and her Legal Advisors, David R. Siddall and Mary P. McManus, to discuss the licensing of LMDS in the 28 GHz band, as addressed in CellularVision's filings in CC Docket No. 92-297 and ET Docket No. 94-124. Enclosed for filing in CC Docket No. 92-297 and ET Docket No. 94-124 are two copies of the materials provided to Commissioner Ness, Mr. Siddall and Ms. McManus during this meeting.

Please direct any questions regarding this matter to the undersigned.

Sincerely,



Michael R. Gardner  
Counsel for CellularVision

Enclosures

cc: Commissioner Susan Ness  
David R. Siddall  
Mary P. McManus  
Susan E. Magnotti

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## **CELLULARVISION: LMDS DISCUSSION**

- (1) Since August 1986, the Commission has developed an exhaustive public record in support of the commercial deployment of LMDS in the 28 GHz band, including its January 1991 grant of CellularVision of New York, L.P.'s commercial license to serve consumers throughout the 1,147 square mile New York PMSA
- (2) LMDS offers immediate competition in the video, telephony and data delivery markets; in fact, the telephone system capacity of LMDS far exceeds the telephone capacity of proposed FSS systems
- (3) Nationwide deployment of LMDS in the 28 GHz band offers numerous and immediate public interest benefits, including the ability to generate enormous federal deficit reducing revenues promptly through auctioning of the 28 GHz band
- (4) The Clinton Administration's Small Business Administration and other public interest-minded parties support the immediate deployment of LMDS in the 28 GHz band
- (5) LMDS systems and FSS/MSS systems can co-exist in the 28 GHz band — as supported by the Motorola/CellularVision Agreement, and Bellcore's co-frequency sharing studies
- (6) Numerous countries in various regions of the world, particularly North and South America, have licensed LMDS in the 28 GHz band
- (7) The parties most familiar with LMDS design have recognized that LMDS would not be viable in the 40 GHz band

1. **FCC Actions Establishing Support for the  
Nationwide Deployment of LMDS in the 28 GHz Band**

- Aug. 1, 1986: FCC granted first 28 GHz LMDS experimental license to CellularVision's principals
- July 29, 1988: CellularVision's principals filed application for commercial license to provide LMDS in New York
- Oct. 11, 1989: FCC granted equipment authorization to CellularVision's principals
- Jan. 3, 1991: FCC adopted order granting CellularVision of New York, L.P.'s ("CVNY") commercial license, authorizing a multi-cell 24 channel LMDS video delivery system in New York PMSA, and approving location of first transmitter in Brighton Beach
- Jan. 23, 1992: FCC granted equipment authorization to CellularVision's principals
- Mar. 16, 1992: FCC modified CVNY's commercial license to allow delivery of 49 video channels
- Dec. 10, 1992: FCC adopted NPRM proposing to license LMDS in the 28 GHz band with two 1 GHz licenses per service area, and tentatively granted CellularVision's principals a pioneer's preference as "the innovator of LMDS technology"
- Jan. 19, 1994: FCC adopted Second NPRM, proposing Negotiated Rulemaking to resolve LMDS/satellite technical issues, with window for public interest comments if no consensus on co-frequency sharing
- Feb. 11, 1994: FCC released Public Notice seeking comment on the establishment of Negotiated Rulemaking
- July 12, 1994: FCC released Public Notice establishing Negotiated Rulemaking
- July 26-  
Sep. 23, 1994: LMDS/FSS 28 GHz Negotiated Rulemaking concluded with CellularVision/Motorola LMDS/MSS co-frequency sharing agreement

## 2. **LMDS Offers Immediate Competition in the Video, Telephony and Data Delivery Markets**

- The Local Multipoint Distribution Service ("LMDS") is a wireless, interactive, multi-cell system that is immediately capable of using the largely fallow 28 GHz band as a broadband information superhighway directly to the home to provide:
  - (1) competition in the **multichannel video delivery marketplace** as an affordable alternative to cable television;
  - (2) competition in the **local telephone loop**; and
  - (3) competition in the **delivery of data information**.
- By offering consumers with a competitive alternative to current video, telephone and data services, LMDS will fulfill important Congressional and Commission objectives of providing competitive consumer choices in both the cable and telco marketplaces, where robust competition is a proven more effective force than the complex rate regulation being criticized by leadership in the 104th Congress.
- The telephone capacity of LMDS, which can provide simultaneous telephone service to approximately 75-90% of the U.S. population, far exceeds even the highest capacity proposed FSS two-way satellite system, the Teledesic system, which could provide:
  - simultaneous telephone service to **only 0.18% of the population** in the densest areas covering 90% of the total U.S. population, and
  - T-1 service to **only 0.0018% of this same population** of approximately 234 million persons.

### **3. Nationwide Deployment of LMDS in the 28 GHz Band Offers Numerous and Immediate Public Interest Benefits**

- As the Commission has recognized repeatedly,<sup>1</sup> LMDS in the 28 GHz band will provide a new and much needed multichannel video service in competition with cable; CellularVision of New York's ("CVNY") commercially licensed operating system in the New York PMSA offers consumers a high-quality, 49-channel video programming service (including movie channels) for \$29.95 per month.<sup>2</sup>
- LMDS also will provide competition in the local telephone loop, offering consumers an alternative for interactive voice and data services
- All consumers, regardless of social or economic class, will be able to enjoy the numerous benefits of this affordable lane on the NII and GII
- The Commission's proposal to issue two license per BTA will create almost 1,000 LMDS licenses nationwide, creating significant opportunities for ownership by women, minorities and small businesses
- LMDS will create jobs for U.S. workers in the areas of LMDS system operations, as well as in equipment manufacturing, particularly in the beleaguered defense sector
- LMDS will create a valuable export technology for the U.S. to be utilized in developed and developing countries throughout the world
- LMDS will produce billions of deficit-reducing dollars for the U.S. Treasury through auctions of the 1,000 LMDS licenses nationwide

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1. See Hye Crest Management, Inc., 6 FCC Rcd 332, para. 24 (1991) (Commission noted that CVNY's LMDS proposal would "bring a new and needed multichannel video service to the New York City market in competition with cable television and other video delivery and distribution services . . ."); see also Notice of Proposed Rulemaking, Order, Tentative Decision and Order on Reconsideration, 8 FCC Rcd 557, para. 16 (1993) (Commission noted that LMDS in the 28 GHz band "would provide additional competition for franchised cable companies" and that "[a] new source of competition for franchised cable companies, wireless cable companies and other video service providers furthers our goal of using the disciplines of the marketplace to regulate the price, type, quality and quantity of video services available to the public.").

2. CVNY's commercial license grant contemplates a multi-cell LMDS system providing a cable alternative to consumers throughout the New York PMSA. Accordingly, CVNY enlisted Bell Atlantic, Philips Electronics North America Corporation and J.P. Morgan as strategic investors, and has purchased equipment and secured transmitter sites necessary for the deployment of its system throughout the 1,147 square mile New York PMSA.

#### **4. The Clinton Administration's Small Business Administration and other Public Interest-Minded Parties Support the Immediate Deployment of LMDS in the 28 GHz Band**

##### **Small Business Administration:**

- "[W]hen the record is developed, an allocation weighted towards terrestrial use will meet the primary statutory mission of the FCC -- making available rapid, efficient, and national communication services." (SBA Comments, CC Docket No. 92-297, March 28, 1994, page 2)
- "No licensing regime can accommodate small business if the 28 GHz band is allocated entirely to satellite communication." (Id., note 1)
- "In addition to increasing opportunities for small business providers of services, terrestrial uses may also provide greater benefits to small business users." (Id., page 5)
- "[S]ubstantial benefits exist in utilizing the 28 GHz for terrestrial services if coexistence is not possible." (Id.)
- "LMDS, due to its affordability, enables a wide diversity of parties to participate in the multichannel telecommunications revolution . . . The relatively low-cost [of offering LMDS] also would enable minority and female-owned groups, generally underrepresented in the ownership of mass media properties to obtain such properties." (SBA Comments, CC Docket No. 92-297, February 14, 1995, pages 4-5)
- "LMDS is a relatively inexpensive technology that can bring distant learning on multiple channels to rural classrooms." Id., page 5)
- "The Office of Advocacy . . . believes that many more benefits arise from terrestrial use of the 28 GHz band or some mechanism for FSS to share service with terrestrial users." Id., pages 6-7)

##### **Association of America's Public Television Stations/Public Broadcasting Service:**

- "Public Television has participated in the LMDS rulemaking proceeding since its inception . . . and has several filings on record in that proceeding that explain the importance of reserving a portion of the proposed LMDS

spectrum for use as a cost effective, "last mile" delivery system for the interactive video and data network of services made available through public broadcasting stations to school, libraries and other learning centers." (APTS/PBS Reply Comments, ET Docket No. 94-124, March 1, 1995, page 4)

- "[M]any parties including Public Television have made clear to the Commission the important potential uses for LMDS in the 28 GHz spectrum and the need for a set aside of spectrum for nonprofit uses in that spectrum." (Id., page 5)
- "Public Television remains very interested in the potential uses of the 28 GHz spectrum in providing interactive educational and community outreach services and urges the Commission to resolve the public policy issues involved in allocation of the 28 GHz band." (Id., page 6)

#### **The University of Texas System:**

- "The two-way capability afforded by the LMDS technology will permit a level of academic flexibility and expansion previously unheard of in American education." (The University of Texas System Comments in response to First NPRM, March 12, 1993, page 3)
- "LMDS technology can be adapted as a two-way distribution system for continuing education courses offered by colleges and universities across the nation." (Id.)
- "A few of the highly specialized areas higher education will serve with LMDS delivered continuing education programming include, the legal community, the medical community, and a host of corporate entities desiring additional training for their engineering and computing professionals." (Id., page 4)
- "Due to the cellular nature of the LMDS system, the ability to use the technology to conduct remote site teleconferences offers tremendous educational opportunities." (Id., page 5)
- "LMDS offers America the ultimate in the "electronic town hall" concept." (Id.)
- "The significance of LMDS as a metropolitan extension of the data highways is equivalent to replacing headphones with large speakers so

that the entire community can receive educational programming." (Id.)

\* \* \*

Despite these compelling comments about the public interest benefits of LMDS, the Commission has failed to provide the opportunity that it explicitly committed to in the Second NPRM (February 1994), when it stated that if the members of the NRMC did not reach a consensus for co-frequency sharing, the Commission would "**require a record based on issues pertaining to the overall public interest**" (para. 35) to allow it "**to select the best choices among services proposed.**" (para. 47)

- As the Commission explicitly recognized, "[a]ssuming the Commission ultimately must select among service proposals for the 28 GHz band, the factors we will employ to do this will include:" which service:
  - (1) has the greatest potential to stimulate lower prices and higher demand for services?
  - (2) offers competition in existing markets?
  - (3) is most likely to be valuable for education, job training, health care?
  - (4) permits the greatest number of service providers to operate systems?
  - (5) best promotes the offering of new, high-quality and innovative services?
  - (6) will become available when, and when will benefits likely materialize?
  - (7) promises to create the greatest number of high-paying jobs?
  - (8) is most likely to make the most and most valuable services available to the broadest segment of the national community?
  - (9) facilitates the development of the National Information Infrastructure?



5. **LMDS Systems and FSS/MSS Systems Can Co-exist  
in the 28 GHz Band**

**LMDS/MSS:**

- **Motorola/LMDS Co-frequency sharing agreement:** In the 28 GHz Negotiated Rulemaking, numerous LMDS proponents and Motorola Iridium, the only MSS proponent who applied for authority to use a portion of the 27.5-29.5 GHz band, agreed to co-frequency sharing rules (NRM-84, Rev.1, September 23, 1994). This agreement was formally supported by 11 members of the NRMC.
- Based on this LMDS/MSS co-frequency sharing agreement, Motorola recently "t[ook] issue" with the FSS parties "which ignore or misstate" the fact that LMDS and satellite systems cannot share the 28 GHz band (Motorola Reply Comments, ET Docket No. 94-124, March 1, 1995, pages 3-4).

**LMDS/FSS:**

- **Belcore, a respected third party representing the collective technical experience and wisdom of the Bell Companies, disagreed in the NRMC Record with the FSS parties public position that LMDS and FSS cannot share the 28 GHz band.** Specifically, in the NRMC Report, Belcore submitted a preliminary analysis demonstrating that mitigation techniques not considered in the Negotiated Rulemaking, such as improved FSS earth station antenna sidelobes, could produce "**dramatic improvements in interference**" that FSS earth station uplinks would cause to LMDS receivers. (Belcore Study, NRMC Report Addenda, September 23, 1994)
- **Belcore's continuing analysis:** In February 1995, Belcore agreed to provide an in-depth technical analysis of LMDS/FSS co-frequency sharing for a Coalition whose members include Bell Atlantic, Motorola, Texas Instruments, CellularVision of New York, Titan Information Systems, Philips Electronics North America Corporation, and The International CellularVision Association. (press release attached)

## 6. Worldwide Deployment of LMDS in the 28 GHz Band

- Numerous countries in various regions of the world, particularly North and South America, have granted commercial or experimental licenses for LMDS in the 28 GHz band.

These countries include:

**Canada**  
**Mexico**  
**Brazil**  
**Venezuela**  
**Argentina**  
**Guatemala**

- In addition, in **seven additional countries**, CellularVision licensees are in final negotiations with their respective governments to obtain licenses for LMDS in the 28 GHz band.
- CellularVision is in negotiations with groups in numerous additional countries throughout every region of the world.
- **28 GHz LMDS is Consistent with ITU Regulations:** Licensing LMDS in the 28 GHz band is consistent with the ITU Table of Allocations, which lists FIXED, FIXED-SATELLITE (Earth-to-space) and MOBILE as co-equal in the 27.5-29.5 GHz band (copy of relevant section attached). In ITU terminology, FIXED includes terrestrial point-to-point and point-to-multipoint communications.

## **7. The Parties Familiar with LMDS Design Have Recognized that LMDS would not be Viable in the 40 GHz Band**

### **CellularVision:**

- Based on significant differences in signal propagation characteristics, component technology and system implementation, CellularVision projects the cost of providing LMDS service at 40 GHz to be grossly more expensive than the cost at 28 GHz, rendering 40 GHz LMDS unviable. (CellularVision Reply Comments in Docket No. 94-124, March 1, 1995, page 2)
- Due to spectral efficiencies realized at 28 GHz that would be lost at 40 GHz, LMDS would require four times as much spectrum at 40 GHz. (Id.)
- The CEPT's proposed "MVDS" is not the equivalent of LMDS; MVDS would be a limited capacity (20-32 video channels), one-way service designed to operate in Northern Europe's climate dominated by drizzle. (Id.)

### **Texas Instruments:**

- "In fact the 3mm/hr that these [European 40 GHz] allocations are based on do not even come close to the 25mm/hr minimum rain fall rates used for system design in the United States. . . Thus, to propose that the United States should move the 28 GHz LMDS systems to 40 GHz would only serve to prevent the American public from sharing in the many benefits offered by LMDS." (Texas Instruments Comments, ET Docket No. 94-124, February 27, 1995, March 1, page 8)
- "The European community has recognized the limitations associated with operation at 40 GHz as is evident from the lack of commercial 40 GHz systems in Europe today. The rain fall differences between Europe and the United States is different enough such that any comparison of operational similarities at 40 GHz in the two geographical regions is irrelevant." (Id., page 9)
- "The 40 GHz band is not technically and operationally comparable with 28 GHz operation as claimed by the FSS proponents. There are significant differences in both the equipment requirements, in their design,

and in LMDS system deployment and operation at 40 GHz that would have substantial economic impact. This economic impact for the development and operation at 40 GHz is significant enough to essentially delay the implementation of LMDS in the United States for an unpredictable amount of time." (Id.)

**Titan Information Systems Corporation:**

- "Moving LMDS to spectrum within the 40 GHz band will not resolve the spectrum allocation issue as the opponents of LMDS claim -- this action by the Commission would, however, completely eliminate LMDS as a competitive alternative to Cable for the delivery of multi-channel television, telephony and other information services. This unintended result would clearly not be in the public interest." (Titan Reply Comments, ET Docket No. 94-124, March 1, 1995, Summary at i) (emphasis in original)
- "LMDS is not now, nor will it be in the foreseeable future, technically or economically viable within the 40 GHz band." (Id., page 3)
- "Titan will show below that the propagation characteristics of radio waves at 40 GHz render it unusable for LMDS . . . Hughes, NASA and Teledesic all submit an incomplete analysis of the propagation of radio waves at 40 GHz." (Id.)

**AEL Industries, Inc.:**

- "The increases in path loss, rain attenuation and component loss and complexity make LMDS at 40 GHz impractical and not economically feasible." (AEL Reply Comments, ET Docket No. 94-124, March 1, 1995, page 1)
- "LMDS at 41GHz is not a viable system." (Id., page 7)

**Bell Atlantic:**

- "[T]he satellite interests are wrong that moving LMDS to the above 40 GHz bands is an easy fix that leaves everyone a winner." (Bell Atlantic Reply Comments, ET Docket No. 94-124, March 1, 1995, page 3)

- "Forcing a move [of LMDS] to the above 40 GHz bands, as urged by the satellite interests, would severely undermine the viability of LMDS as a competitive service." (Id., page 5)

**Comtech Associates, Inc.:**

- "Given that the allocation to the 40 GHz band may destroy the domestic LMDS industry, the Commission should carefully weigh the benefit to the public of the competing services." (Comtech Reply Comments, ET Docket No. 94-124, March 1, 1995, page 1)

**Video/Phone Systems, Inc.:**

- "In sum, contrary to the self-serving assertions of the satellite concerns, the operating conditions for an LMDS-type service in the 41 GHz band are substantially more onerous than those at 28 GHz, and the implementation costs would be commensurately higher, even with the employment of the latest state-of-the-art technology." (Video/Phone Reply Comments, ET Docket No. 94-124, March 3, 1995, page 7)
- "The Commission should not permit Satellite concerns, such as Teledesic, Hughes, TRW and NASA to mischaracterize Commission proposals in the Above 40 GHz Notice, or divert attention from the need to continue the process in the LMDS rulemaking of formulating a technical and regulatory structure for co-primary LMDS/FSS sharing in the 28 GHz band." (Id., page 8)

**mm-Tech, Inc.:**

- "If the FCC is persuaded that LMDS in the US should be shifted to the 40 GHz band it is likely the US will either wind up with a system with inferior performance at higher cost that does not match systems deployed world wide, or more likely, be left with no LMDS at all." (mm-Tech Reply Comments, ET Docket No. 94-124, February 28, 1995, page 2)

We have  
*seen* the

future...

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A lot of **promises** are being made about

the delivery of entertainment



and information services to the

home and office. Promises are not

**solutions.**

C-DataVision delivers a new, elegant, low cost, audio

**quality**

solution. Multichannel broadcast entertainment

and information.



at a fraction of the cost of cable, fiber optics,

or satellite systems. Available C-DataVision as "Fiber in the Sky."



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communication, C-DataVision presents real opportunity.

**today.**

## THE CELLULARVISION ADVANTAGE

CellularVision™ offers true "technological convergence" by efficiently and economically delivering to homes, businesses and schools the interactive services promised by traditional cable and phone operators, at a fraction of the cost:

- Multichannel interactive television
- Local telephony
- Video teleconferencing
- Computer interface data transfer
- Transactional services
- Remote medical and educational services

The CellularVision system — a local multipoint distribution system (LMDS) — also overcomes many of the obstacles confronting "traditional" wireless technologies:

- CellularVision uses the previously untapped millimeter portion of the radio frequency band. Its available bandwidth gives it a spectrum capacity that equals fiber optic cable and exceeds that of coaxial cable and other wireless systems.

■ CellularVision signals do not require a direct line of sight between the transmitter and the receiver, which is required by multipoint distribution systems (MMDS).

■ Interference, multipath and ghosting is non-existent with the CellularVision system.

■ The difference in quality between CellularVision's wireless signal and that provided by wired systems can be compared to the difference between FM and AM radio signals. With virtually no interference and a signal-to-noise performance that significantly exceeds the accepted standards for wire delivery,

CellularVision provides superior sight and sound quality.

■ CellularVision provides localized programming capability, which is not offered by uni-directional Direct Broadcast Satellite (DBS) systems.

■ CellularVision provides maximum area coverage by distributing signals to a network of cells, which then redistributes the signals to the receivers of subscribers. The original signal has been repeated just once, thereby ensuring quality transmission.

■ The CellularVision technology is bi-directional for interactive communications: video-on-demand, high speed data, personal communications and transactional services.

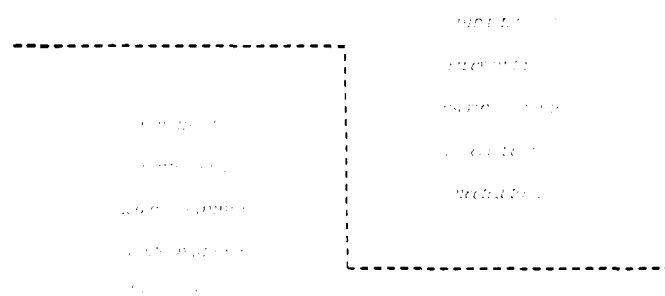
### *System simplicity*

The simple infrastructure of the CellularVision system sets it apart from wired, satellite and other wireless systems.

Once the initial head-end investment has been made, the only additional capital outlay required is to provide a cell transmitter and compact, in-home receivers with set-top boxes to customers as they subscribe.

### *Localized programming*

With the system's cellular configuration, CellularVision operators have the flexibility to provide locally focused programming on a cell-by-cell basis, thus enabling an operator to cater to the particular needs and demographics of its subscribers and advertisers.





## THE BEAUTY OF WIRELESS

To deliver new or enhanced interactive services, traditional operators will have to upgrade the limited capacity of their existing networks — at a cost likely to be passed on to the consumer.

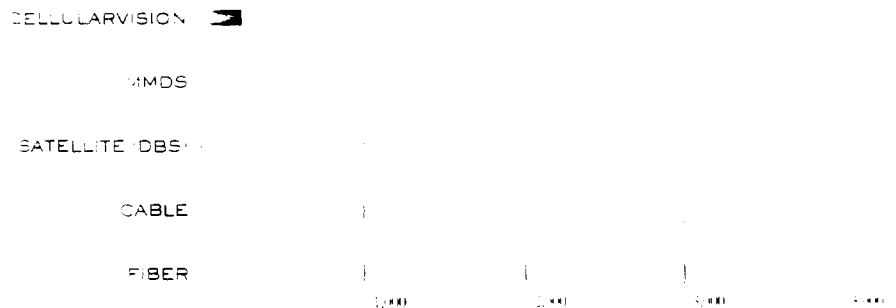
CellularVision eliminates the costs associated with building, installing, maintaining or upgrading copper wires, fiber cable or satellites.

As a broadband wireless distribution system, CellularVision can provide the most cost-effective, interactive connection to the home and office. CellularVision may also supplement existing fiber optic systems by providing the "last mile" connection. Now, fiber to the curb becomes fiber in the sky.

### INSTANT DEPLOYMENT QUICK TIME TO MARKET

The simple system design and limited infrastructure requirements enable CellularVision operators to install systems quickly and easily.

### LOWEST PER-SUBSCRIBER COST



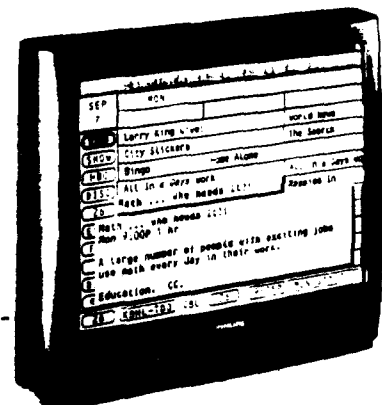
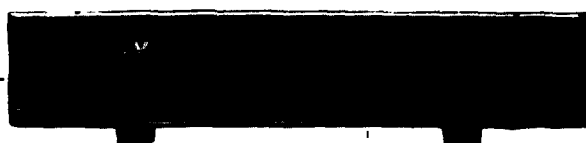
CellularVision's flexible system architecture allows the operator to choose the optimal market areas in which to implement the system and maximize initial revenue.

### Guaranteeing the success

CellularVision's licensing entity, CT&T, L.P., has domestic and international licensing programs and welcomes the opportunity to work with any potential licensee interested in providing consumers with the most cost-effective and comprehensive ramp onto the

emerging Information Superhighway for entertainment, information and special services.

CT&T grants exclusive licenses to potential operators on a territorial basis. Intellectual expertise, trademarks and patents are extended to the licensee including future innovations involving this technology.





CV



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- Interactive, full addressability
- Localized programming
- Quick implementation
- System simplicity, reliability



**CW**  
CELLULARVISION

Images from "Today" magazine and a "Landscape" picture by a member of the  
CellularVision team.